path with little or no control over his speed. In order for it to work, substantial amounts of water must be injected into and evacuated from certain points along the path of the trough. By contrast, the Lawn-surfslide offers a path some twenty to thirty feet wide laid out with curves simulating the descent of a snowboarder on a natural slope. In fact, the lawnsurfsliding ramps are fitted into naturally sloping terrain in such a way that the artificial structures are kept to a minimum. Most importantly, the surfer picks his line according to his level of skill and each ride is not identical the previous ride because the rider has control over direction and speed.

A water slide like Langford requires a considerable amount of water to run down the slide to make the ride workable and enjoyable. The fine-tuning of such water dispersion and evacuation can be quite a challenge. It makes sense for Langford to include in his patent claims a water dispersion and extraction system because it is a water slide. The surfslide uses artificial turf as a water retaining surface so that all along the wide path, water is available as the rider surfs over it. Only the squeezed out water has to be replaced. In this "carpet -like" arrangement, such replenishment takes place within a few seconds by water seeping in from above. To facilitate such replenishment, small quantities of water are dispersed continuously through commercial shrub sprinkler heads or similar devices. Excess water runs off to water collectors comparable to street corner water collection.

Because the water slide of Langford is made for the rider to sit or lay prone, the vehicle for traveling down the trough is of a completely different design than the surfboard of the surfslide slide which is designed for the rider to stand upon and train to acquire riding skills comparable to surfing or snowboarding (for design of surfboard see design patent number D82823).

Langford's invention would not suggest to use a friction control surface as the intention of the invention was to "increase the possible speed at which a rider can safely traverse the slide and in part by arranging a trajectory path which is quite fast notwithstanding roller coaster-like topography features" and to provide an "elongated drain at a low elevation between the uphill and downhill sections prevent(ing) pooling of water tending to slow down the rider". Therefore, Langford was not interested in having any additional surface friction control other than water. Langford had the opportunity of the teachings of Heller at the time he patented his invention and chose not to include a friction control surface.

The artificial sliding surface referenced in Heller is a "surface formed of fabric such as tilts, coir, or the like runners, carpet materials, or fabrics ... possibly impregnated with one or more substances for increasing their water resistance and slipperiness, for example wax of high melting point". The key to Heller's artificial sliding surface is that it is water resistant; it is an attempt to create a dry, low friction surface because his skiing track would be inoperative with water as water is incompatible with skiing. By contrast, Grimes uses water to control friction suitable for a vehicle designed for water sliding. In order to assure water availability at any point, Grimes uses carpet-like artificial turf with high water retention and disperses, at all times, small amounts of water over the upper parts of the sliding ramps; the lower parts of the ramp are then alimented as the water seeps down.

Heller discloses a particular ramp system with "a narrower sliding track with calculated and predetermined inclinations". One of the key elements of Grimes is that the track is sufficiently wide to have curves allowing the rider to control his direction and speed according to the level of skill and it is not a predetermined path.

The prior art references do not contain any suggestion that they be combined, or combined in the manner suggested. Langford does not teach a way to use its device in an erect position. In fact, it would be impossible to slide down this water slide while standing as the ramp is much too narrow to balance body motions. Additionally, the water slide disclosed is designed to use a substantial amount of water for flotation. Therefore, this invention has to provide for an intricate water control system in order for the rider to use the slide. There is no suggestion in Langford to combine the teachings of Heller which was published in 1941 and prior art to Langford. Heller is a ski ramp and not a water slide. Heller does not even use water as a lubrication means. Heller's invention is made to allow a person to ski down a ramp in a predetermined path. The system is constructed to utilize an artificial sliding surface but to prevent water from interfering. Langford does not mention any type of surface because his invention uses a thick film of water for friction control. The present invention combines the use of water as a lubricant and a friction control surface, such as artificial turf, in order to allow a person to stand erect while using the downhill ramp surfslide, all while controlling the direction and speed of his path while surfsliding. Langford's user must ride in a seated or prone position; Heller's user must be erect to be able to use the ski ramp. The prior art references do not teach nor do they suggest the combination of the teachings in the Grimes patent.

Grimes employs new ways of allowing a user to simulate the feel of snowboarding on an artificial surface. The Grimes invention allows a user to be erect and choose his path of downhill surfsliding all while controlling his speed of descent. Grimes has invented a ramp system that is sufficiently wide for a user to stand erect and surf on a water lubricated friction control surface while choosing the direction and speed of his path. It is not logical to combine the teachings of

Langford and Heller as each use different solutions to solve a similar problem: namely to provide a artificial sliding device. Langford provides a water slide using water as the lubricating means and Heller provides a ski ramp using an artificial sliding surface as the medium of "lubrication". Additionally, neither have suggested a way for a user to stand erect in a wide path ramp system so that the user can "surf" on the water lubricated surface.

Those skilled in the art would find it physically impossible to combine the references in the manner suggested by the examiner. It would be physically challenging to combine the references in the manner suggested by the examiner because the Langford invention would not be useful if it had a water resistant fibrous material covering the sliding track. The only way that the Langford invention can work is to have water as it is a water slide. Should one skilled in the art cover the Langford track with a water repellant substance, the water would run off unevenly making for a rocky, unpleasant ride. The Heller invention is supposed to be water resistant and has no mechanism for retaining water and in fact has a drainage system to remove any unwanted water from the track, therefore one skilled in the art would not be able to employ Langford's water means on the Heller invention. The Grimes patent discloses a friction control surface not an artificial sliding surface that is water resistant as in Heller.

Additionally, if Langford and Heller were combined, the outcome would be an inoperative invention. For the same reasons as stated above, the combination of Langford and Heller would result in an inoperative design.

Furthermore, even if combined, the references would not meet the claims of the subject invention. Besides the fact that the outcome of a combination of the two cited references would be inoperative, the combination would not meet the claims of the Grimes invention. The

difference being that the Grimes patent has invented a way to reduce the amount of water necessary like in Langford and increase the amount of control of the user so that the user is not merely "riding" but is employing skill to chose the direction and speed of his path down the open ramp system. The friction control surface retains water equally over its entire large surface and necessarily decreases the amount of additional water for the surfslide. Only the water which is squeezed out by the weight of the user needs to be replaced. There is not a standing pool of running water like in Langford. Grimes' friction control surface is not of the same type disclosed in Heller which was an artificial sliding surface and water resistant while the subject applicant's is water retentive.

The prior art made of record and not relied upon, Croul, is not similar to the present application. Croul's basic geometry and concept has problems because a vinyl covered substrate does not conform to elevations and depressions of the stated excavation. For example, it would be impossible to take a half of a three inch diameter ball and cover it with office scotch tape, neatly edge on edge. It cannot be done because these geometries are not compatible.

Croul's patent discloses the use of "panels of urethane foam or foam rubber materials covered with vinyl sheets" and consistently calls them resilient. These materials would not be resilient when exposed to the elements of sun, wind, rain and frost. Foam rubber is known to disintegrate over time, vinyl becomes hard and brittle as the softeners evaporate, and ultra-violet sun light will cause the materials to rip and tear.

The weight of the descending rider on the panel sections of this patent causes compression and extensions inside the panel along the way making the panel descend a fraction of an inch during each successive run.

The manufacture of the panels as described is not an easy task. Foam is produced in blocks then sawed into sheets of desired thickness. Therefore, the foam core cannot be rolled between the vinyl sheets in a continuous process. Instead, the entire 100 foot length of the top vinyl sheet must be laid out flat, face down, so that the foam sheets can be glued to it one by one, with about 12 ½ per panel. The foam would have to be aligned very carefully to assure that the panels will abut properly in a side-by-side installation. The groove for the water supply pipe must be milled before the above assembly process for the supply pipe with all the "T" connectors for the irrigation tubes can be installed. After the installation of the connectors, the second vinyl sheet can be glued to the bottom (this is similar to gluing two sheets of paper together with a pencil in between). The central pipe must carry enough water to irrigate several hundred feet of panel length requiring an outside diameter of close to an inch. Consequently, the compression characteristics of the inserted pipe will differ from those of the surrounding core foam and the rider will experience the feeling that he goes over the root of a tree or hits a speed bump.

The Croul patent has problems with its water irrigation system. It proposes a point-source irrigation system in the form of distribution tubes ending at the upper vinyl sheet. It assumes that water spreads evenly once it exits through the apertures (see Fig. 3)). However, water does not behave in this manner rather due to its surface tension it "pearls" downhill forming very narrow streams. Therefore, the surfer will most likely slide over a dry surface area and then hit a stream of water intermittently causing a constant change in friction for the surfer. Additionally, Croul does not provide a system for water excavation as the panel is not perforated and if it were perforated than this weakens the structure causing additional problems. More importantly, Croul does not provide for rainwater evacuation as the sliding apparatus as shown will flood very easily.

Grimes has a different method of conforming to the natural elevations and depressions of the land by shooting a hardening material such as concrete or fiberglass from a gun on site. This method will allow for any form of excavation and form a firm substrate. Furthermore, the materials can be applied in varying thickness and troweled into the final shape. The hardened substrate is covered with artificial turf tiles which are adjusted to the curvature. As this is a akin to covering a cupola with mosaics the small tiles are manageable in size to easily cover the entire surface. The commercially available artificial turf is weather resistant and chemically and mechanically designed to resist ultraviolet light. Additionally, the turf tiles are adhered to the substrate by a glue such as metrethane, which remains sticky even when exposed to the elements and therefore does not loose its grip under wet or freezing conditions. Therefore, the turf tiles will not move due to the weight of a user or to the weight of snow. Because the turf tiles are adhered by sticky glue, they can be easily removed for repair or replacement if damaged.

The irrigation method of Grimes is significantly different than that disclosed in Croul. Water is dispersed through commercial sprinkler heads fed from a water main on the top of the ramp contour. The bristles of the artificial turf collect the water until saturated and any excess water seeps slowly to the collection system below the tiles. The entire turf surface is saturated at all times during operation and the user has an even distribution of water and lubrication on the entirel surface area. The water collection system of the subject invention is arranged so water collection points are outside the passageway of the user. The terrain is properly graded to assure complete run-off towards the collection points.

Conclusion

The comparison between Langford and Grimes lies in that both offer downhill rides on an artificial ramp with water lubricated surfaces using gravity for the downward motion. The novelty of Grimes' patent application is the construction of a mostly in-ground ramp laid out to simulate the challenges encountered by snowboarders in the natural terrain. The surfslide simulates the challenges of snowboarding as closely as possible on an artificial surface and offers a new sport of skill. Grimes has accomplished this by providing a ramp system wide enough to allow a user to stand erect and surf down the ramp system while controlling the direction and speed of his path. The integral part of this control mechanism is the water retaining friction control surface.

The Grimes approach is very different from Heller approach in that it uses artificial turf in a non-conventional manner. The artificial turf, designed for golf courses and football fields as a grass substitute, is saturated with water so that a film of water becomes the sliding surface at the instance when a passing surfboard glides over it. The Heller patent disclosed a surface that was water resistant therefore accomplishing a dry sliding means rather than a wet surfing one as in Grimes. Langford as well has disclosed a sliding or riding means down an open track and further it does not provide a way for the rider to stand erect.

Croul formulates the same basic concept in offering the user a ride on a surfboard or other vehicle down a slope over an artificial surface with water as a lubricant. However, Croul ignores fundamental geometry and basic manufacturing technology and therefore this invention would be extremely difficult to manufacture and an inefficient way to operate. Furthermore, the Grimes application discloses a completely different way of accomplishing the above-stated objective

while providing a low friction surface and most importantly a constant friction surface for the user which Croul was not able to provide.

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

Respectfully submitted,
Martin O. Grimes, Jr.
By his attorney,
Cristina M. Offenberg, Esq.

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Date: 6/2/08

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